

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 through 54 (Cancelled).

55. (Currently Amended) A method for filtering blood comprising:

withdrawing blood from an adult patient;

performing ultrafiltration by filtering the withdrawn blood in a filter having an active filter membrane surface of no greater than 0.2 meters squared (m^2) to remove ultrafiltrate from the blood, wherein the filter membrane blocks passage of blood molecules having a molecular weight cut of at least 50,000 Daltons, wherein an amount of the removed ultrafiltrate is an effective therapeutic amount for treating a fluid overload condition of the patient, and

infusing ~~treated~~ the ultrafiltrated blood into the adult patient.

56. (Currently Amended) A method as in claim 55 wherein the ultrafiltrate is removed at a rate determined by a mechanical filtrate pump and said method further comprising concentrating the blood by removal of the ultrafiltrate

57. (Currently Amended) A method as in claim 55 further comprising removing the ultrafiltrate with the filtrate pump at a rate no greater than one liter per hour.

58. (Previously Presented) A method as in claim 55 further comprising withdrawing the blood in a range of 10 to 60 milliliters per minute.

59. (Previously Presented) A method as in claim 55 further comprising passing the blood through a blood circuit comprising the filter during a residence time period of no greater than 120 seconds.

60. (Previously Presented) A method as in claim 55 further comprising passing the blood through filter fibers having a length of at least 20 centimeters and wherein said filter fibers are housed in a substantially straight filter housing.

61. (Previously Presented) A method as in claim 55 further comprising passing the blood through a straight bundle of filter fibers having at least 620 fibers.

62. (Previously Presented) A method as in claim 55 wherein said filter further comprises a substantially straight housing having a length of at least 20 cm and an internal diameter of no greater than 1.5 cm.

63. (Previously Presented) A method as in claim 55 further comprising a shear rate of blood flowing through the filter of at least 1000 per second.

64. (Currently Amended) An ultrafiltration filter for an extracorporeal blood circuit having an input for blood withdrawn from a human patient and a blood output for filtered blood to be infused into the patient, said ultrafiltration filter comprising:

a filter body having a length of at least 20 centimeters (cm) and an interior diameter of no greater than 1.5 cm;

an input at a first end of the body to receive the withdrawn blood;

an output at a second end of the body to discharge the filtered blood;

a filter membrane in the body defining a blood passage through the body, wherein the membrane has an active filter membrane surface area of no greater than 0.2 meters squared (m^2) and the filter membrane blocks passage of blood molecules having a molecular weight cut of greater than 50,000 Daltons, and

an ultrafiltrate output to the body and open to a side of the filter surface area opposite to the blood passage.

65. (Previously Presented) A filter as in claim 64 wherein the active filter membrane surface area is no greater than 0.1 m^2 .

66. (Previously Presented) A filter as in claim 64 wherein a volume of the blood passage in the filter is less than two percent of a cardiac output of an adult.

67. (Previously Presented) A filter as in claim 64 wherein the filter membrane surface is an interior surface of a bundle of filter fibers.

68. (Previously Presented) A filter as in claim 67 wherein the filter fibers have a length of at least 20 centimeters.

69. (Previously Presented) A filter as in claim 67 wherein the bundle of filter fibers has at least 620 fibers.

70. (Previously Presented) A filter as in claim 64 wherein the filter body is substantially straight.

71. (Previously Presented) A filter as in claim 64 wherein the filter membrane comprise:

hollow fibers and said fibers are arranged in a substantially straight bundle no greater than 1.5 centimeters in diameter.